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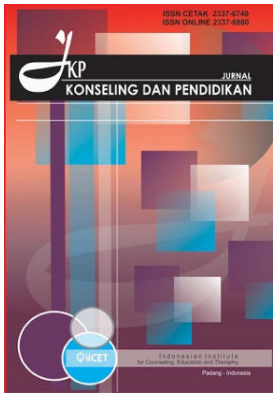

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Article

Relationship between age and weight with the incidence of anemia in seko barat public health center

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ABSTRACT

Anemia is a medical condition in which the number of red blood cells (erythrocytes) or hemoglobin levels in the blood are below normal. The phenomenon of anemia in remote areas such as Seko Barat can be explained by several main factors. According to Guyton and Hall (2016), limited access to health services in remote areas can hinder early detection and treatment of anemia. The type of research used is a Cross Sectional Study. The population in this study were pregnant women who were able to check themselves at the Seko Balralt Health Center. The population in this study was 34 people. The sample size used in this study used a total sampling technique, namely by taking all members of the population as samples. By testing using the chi-square technique, p = 0.013 is obtained, which is smaller than = 0.05, this means that Ho is rejected and Ha is accepted. Thus, there is a relationship between body weight and the incidence of anemia at the Seko Barat Health Center, North Luwu Regency, South Sulawesi.

Keywords:

Age
Body weight
Incidence of anemia

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Introduction

Anemia is a medical condition characterized by a decrease in the number of red blood cells or hemoglobin in the blood below normal levels, which can impair the blood s ability to transport oxygen to body tissues. This definition encompasses several important aspects, including: (Pagehgiri et al., 2022). The phenomenon of anemia in remote areas like West Seko can be explained through several key factors. According to (Linda & Mariani, 2022), limited access to healthcare services in remote areas can hinder the early detection and management of anemia. In addition, limited access to nutritious food, as described by (Rahardjo et al., 2022), can lead to an imbalance in nutrient intake, particularly iron, which is essential for preventing anemia. Another contributing factor is the low level of education and public awareness regarding the importance of nutrition and health, as discussed in the (Ani et al., 2021). Ministry of Health of Indonesia journal. Poor sanitation, as reported by the (Hasriantirisna, 2024), can also increase the risk of parasitic infections that contribute to anemia. Therefore, public health interventions such as iron supplementation programs and nutritional education are crucial to reducing anemia rates in West Seko (Primadewi, 2024).

According to the latest data from the (Ekasanti et al., 2020). World Health Organization (WHO), anemia remains a significant public health issue globally, especially in low- and middle-income countries. It is estimated that around 40% of children aged 6 59 months, 37% of pregnant women, and 30% of women aged 15-49 years worldwide suffer from anemia. This figure indicates that nearly half a billion women of reproductive age and 269 million children globally are affected by anemia. In the regions of Africa and Southeast Asia, the prevalence of anemia is particularly high, with 106

million women and 103 million children in Africa, and 244 million women and 83 million children in Southeast Asia suffering from anemia (Tedong et al., 2024).

Based on secondary data from the Health Office of South Sulawesi Province in 2022, there were 104,271 pregnant women suffering from anemia, consisting of severe anemia (Hb less than 8 g%) in 3,467 (3.3%), moderate anemia (Hb 8 to 10 g%) in 42,043 (40.3%), and mild anemia (Hb more than 10 g%) in 58,761 (56.3%). The highest occurrence was in Toraja with 883 cases, while the lowest was in Palopo with around 12 cases (Shekar et al., 2024). In North Luwu in 2022, around 12% of male adolescents aged 13-18 years and 23% of female adolescents aged 13-18 years experienced anemia, mostly due to iron deficiency/anemia. One of the government s efforts to address anemia is through the provision of iron supplementation (60 mg FeSO4) and folic acid (0.40 mg). Data from 2022 showed that the prevalence of anemia in the Seko Health Center reached 30%, a figure significantly above the set target (Lukito et al., 2025).

Given this background, it is necessary to conduct research to analyze the relationship between age, weight, and the incidence of anemia at the Seko Barat Health Center, North Luwu Regency, South Sulawesi (Obeagu et al., 2025). The results of this research are expected to provide useful information for efforts to prevent and manage anemia in the area (Kinyoki et al., 2021).

Methods

Type of Research

This research is a qualitative study conducted using an analytical observational method. It aims to examine the relationship between one variable and other variables (the variables being studied) (Babah et al., 2024). The design of this study is cross-sectional, which is a form of observational study (non-experimental) commonly conducted in research that involves the collection of data at a specific point in time for several variables to determine the relationship between them (El-Aghbary et al., 2024).

Location and Time of Research

This research will be conducted at the Seko Barat Health Center. The research will take place in the months of August to September 2024.

Population and Sample

The population refers to a general area that includes objects/subjects with specific qualities or characteristics defined by the researcher for further investigation and conclusion (Bela & Halim, 2025). In this study, the population consists of pregnant women who come for self-check-ups at the Seko Barat Health Center. The population for this study is 34 individuals (Diastanti et al., 2024).

A sample is the object being studied, which can be influenced by the entire population (Upadhye & Patidar, 2025). According to Salstroismoro and (Jyothi et al., 2024), a sample is a portion of the population selected through specific methods that represent the whole population. In this study, the sample size is 34 individuals (Sankar & Oviya, 2024).

The sampling technique used in this study is total sampling, meaning the entire population is included as the sample (Bassinga et al., 2024).

Results and Discussion

Univariate Analysis

Description of Age

Table 1, shows the distribution of respondents based on maternal age(Organization, 2023). Of the total 34 respondents, the majority were in the non-risk age group (20-35 years), consisting of 23 respondents (67.6%), while the remaining 11 respondents (32.4%) were in the high-risk age group (<20 years and >35 years) (Jembere et al., 2020).

Table 1. Distribution of Respondents Based on Age

Age	Frequency	Percent (%)
Risky (Age <20 year and >35 year)	11	32.4
Not risky (Age 20-35 Year)	23	67.6
Total	34	100.0

Source: Primary Data, 2024

Description of Body Weight

Table 2. Distribution of Respondents Based on Body Weight

Weight	Fequency	Percent (%)
Thin	10	29.4
Normal	12	35.3
Fat	12	35.3
Total	**34**	**100.0**

Source: Primary Data, 2024

Table 2, shows the distribution of respondents based on body weight. Of the total 34 respondents, the majority consisted of 12 respondents (35.3%) in the normal weight category, 12 respondents (35.3%) in the overweight category, and 10 respondents (29.4%) in the underweight category (Kumar et al., 2024).

Description of Anemia

Table 3. Distribution of Respondents Based on Anemia Incidencel

Anemia	Frekuency	Percent (%)
Anemia	17	50.0
Not Anemia	17	50.0
Total	**34**	**100.0**

Source: Primary Data, 2024

Table 3, presents the distribution of respondents based on anemia status, showing that out of 34 total respondents, 17 (50.0%) experienced anemia, while the remaining 17 (50.0%) did not have anemia (Ashrafuzzaman et al., 2023).

Bivariate Analysis

Relationship Between Maternal Age and Anemia Incidence

Table 4. Relationship Between Maternal Age and Anemia Incidence at Seko Barat Health Center, Luwu Utara Regency, 2024

Age	Incident Anemia				Total	
	Anemia		Not Anemia			
	n	%	n	%	n	%
Risky (Age <20 year and >35 year)	9	81.8	2	18.2	11	100
Not risky (Age 20-35 year)	8	34.8	15	65.2	23	100
Total	17	50.0	17	50.0	34	100.0
	P value = 0.010					

Source: Primary Data, 2024

Table 4, presents the analysis of the Relationship Between Maternal Age and Anemia Incidence at Seko Barat Health Center, Luwu Utara Regency, 2024. From 34 respondents in the high-risk age group (<20 years and >35 years), 9 respondents (81.8%) experienced anemia, while 2 respondents (18.2%) did not experience anemia. In contrast, in the non-risk age group (20-35 years), 8 respondents (34.8%) experienced anemia, while 15 respondents (65.2%) did not experience anemia. The results of the statistical test using the chi-square test showed a P value of 0.010, which is less than the significance level (α = 0.05), indicating that H0 is rejected and Ha is accepted(Chén et al., 2020). This confirms that there is a significant relationship between maternal age and anemia incidence at the Seko Barat Health Center, Luwu Utara Regency (Daryani et al., 2023).

Relationship Between Body Weight and Anemia Incidence

Table 5. Relationship Between Maternal Age and Anemia Incidence at Seko Barat Health Center, Luwu Utara Regency, 2024

weight	Incident Anemia				Total	
	Anemia		Not Anemia			
	n	%	n	%	n	%
Thin (18.4)	6	60	4	40	10	100
Normal (18.5 24.9)	2	16.7	10	83.3	12	100
Fat (>25)	9	75	3	25	12	100
Total	17	50.0	17	50.0	34	100.0
	P value = 0.013					

Source: Primary Data, 2024

From 34 respondents in the underweight group (≤18.4), 6 respondents (60%) experienced anemia, and 4 respondents (40%) did not (Lestari et al., 2024). In the normal weight group (≥18.5–24.9), 2 respondents (16.7%) experienced anemia, and 10 respondents (83.3%) did not. In the overweight group (>25), 9 respondents (75%) experienced anemia, and 3 respondents (25%) did not (Jaya et al., 2024). Despite the lower percentage of anemia in the 20-35 years age group compared to the high-risk age group, 34.8% still needs attention (Calisanie & Preannisa, 2022).

The statistical test results with the chi-square test show (P value = 0.010 < α 0.05), indicating a significant relationship between age and anemia incidence (Jaya et al., 2024). The statistical analysis suggests that the relationship between age and anemia in pregnant women is significant, with younger (<20 years) and older (>35 years) age groups showing higher risks for anemia (Arta, 2022).

Furthermore, in the overweight group, 75% of respondents experienced anemia, which indicates a higher risk of anemia in overweight pregnant women compared to those in the normal weight group (Rahmayanti et al., 2022). Although 25% of respondents did not experience anemia, the higher incidence in this group calls for attention. These results indicate that body weight, particularly underweight and obesity, are contributing factors to anemia in pregnant women.

The statistical test results with the chi-square test show (P value = 0.013 < α 0.05), confirming a significant relationship between body weight and anemia incidence in Seko Barat Health Center, Luwu Utara Regency.

Relationship Between Age and Anemia Incidence

The research findings show that in high-risk age groups (<20 years and >35 years), 81.8% of pregnant women experienced anemia, with 18.2% not experiencing anemia. This finding highlights that age, especially younger (under 20) and older (over 35) age groups, are significant risk factors for anemia. Therefore, it is crucial to implement more intensive preventive measures in these age groups.

This result aligns with the research of Salri & Fitri (2021), which found that younger (under 20 years) and older (over 35 years) pregnant women have nearly 4 times the risk of anemia compared to those between 20 and 35 years old. This was supported by statistical tests showing significant differences between these age groups. However, in contrast, Sri Restu's research (2024) found that although pregnant women in high-risk age groups showed a higher tendency for anemia, the statistical significance was not observed (p=0.237).

Relationship Between Body Weight and Anemia Incidence

In the underweight group (18.4), 60% of pregnant women experienced anemia, indicating that being underweight is a risk factor for anemia. Despite 40% not experiencing anemia, the high percentage of anemia in this group warrants attention. This highlights that low body weight, particularly in pregnant women, is an important risk factor that needs to be managed to prevent anemia.

In the normal weight group (18.5 24.9), 16.7% of pregnant women experienced anemia, showing that women with normal body weight had a significantly lower risk of anemia. This suggests that maintaining an ideal weight is crucial for preventing anemia during pregnancy.

In the overweight group (>25), 75% of respondents experienced anemia, indicating a higher risk of anemia among pregnant women who are overweight. While 25% of this group did not experience anemia, the high incidence of anemia in this group requires focused attention. This finding suggests that obesity is another risk factor for anemia that needs to be managed, particularly through nutritional counseling and monitoring.

These findings contrast with the study by Alnanti & Anggralini (2021), which showed no significant relationship between body mass index (BMI) and anemia incidence in pregnant women, although numerical data indicated that more women with normal BMI experienced anemia compared to those who were underweight. However, the difference was not statistically significant (p=0.177).

As per the researcher s assumption, pregnant women with a BMI under 20 years old may have higher nutritional needs to support their own growth and that of the fetus. If their iron intake is insufficient, the risk of iron-deficiency anemia will increase. With age, iron levels tend to decrease, thus raising the risk of iron-deficiency anemia in pregnant women. Additionally, older pregnant women (over 35) may have underlying chronic conditions, such as hypertension or diabetes, which can impact red blood cell production and increase anemia risk. For normal-weight women (20-35 years), the risk of anemia tends to be lower as their reproductive systems are more mature and better support pregnancy. Therefore, maintaining ideal body weight and improving nutrition, particularly iron intake, is crucial in preventing anemia, especially for pregnant women in the underweight and overweight categories.

Conclusion

Age and Anemia in Pregnant Women Research conducted at the Seko Barat Health Center indicates that pregnant women who fall outside the ideal age range (under 20 years or over 35 years) have a higher tendency to experience anemia compared to those within the ideal age range of 20-35 years. The statistical test results also confirm the existence of a significant relationship between maternal age and the incidence of anemia at this health center.

Body Weight and Anemia in Pregnant Women, Pregnant women with either underweight or overweight (obese) body mass tend to have a higher likelihood of experiencing anemia compared to those with normal body weight. The statistical test results support this finding, showing a significant relationship between body weight and anemia incidence at the Seko Barat Health Center.

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